APPENDIX E

ARCHEOLOGICAL AND HISTORIC RESOURCES

In accordance with the National Environmental Policy Act of 1969, Executive Order 11593, the National Historic Preservation Act of 1966, as amended in 1980, and the Archeological and Historic Preservation Act of 1974, archeological and historic surveys were conducted for the resumption of L-Reactor operation. Because no major earthwork is to be undertaken at the L-Reactor site, the surveys were focused on the Steel Creek terrace and floodplain system into which L-Reactor cooling water is planned to be discharged.

This appendix describes the results of the survey performed on the Steel Creek terrace and floodplain system for the L-Reactor operation reference case (direct discharge). In addition, this appendix contains tables that list sites contained in the National Register of Historic Places in the six-county area (Figure 3-4) near Savannah River Plant (SRP). Additional surveys and mitigation have been performed or are in progress; these are described in Appendix L. TC

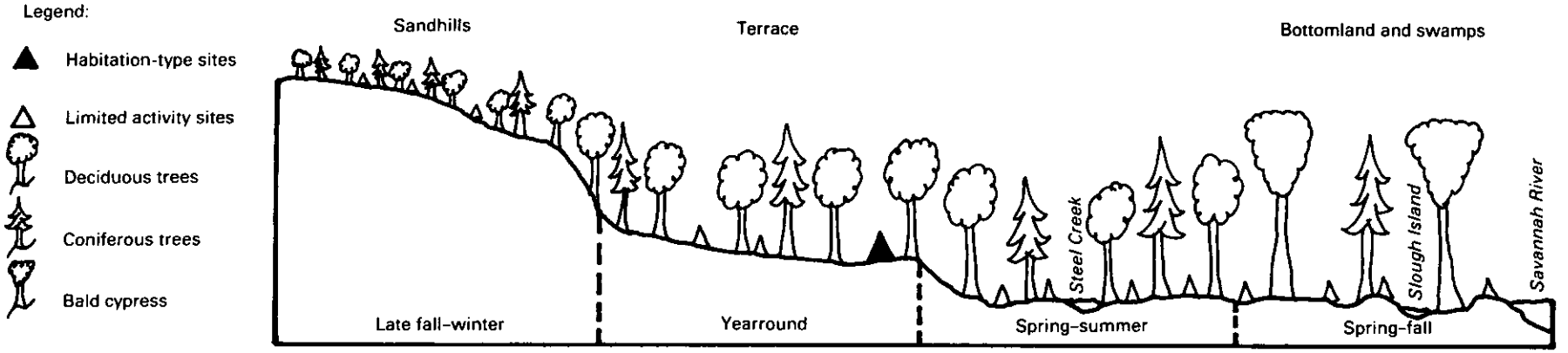
E.1 STEEL CREEK ARCHEOLOGICAL AND HISTORIC RESOURCES

The archeological and historic survey of the Steel Creek terrace and floodplain system below the L-Reactor area was conducted during January and February of 1981 (Hanson et al., 1981). The purpose of the survey was to identify all archeological and historic resources in the potentially affected area, and to determine if identified sites would be affected by increased flow in Steel Creek. The following subsections describe a subsistence model for the prehistoric occupation of the Steel Creek area, a summary of historical activities of the general area, the survey that was performed, and the results of the survey.

E.1.1 Settlement-subsistence model

The variability in the topography, hydrology, elevation, soils, and biota of the Steel Creek watershed was used to construct a settlement-subsistence model for prehistoric times (Figure E-1). The watershed has been divided into four zones, each having characteristic resources for prehistoric man. Two zones--the Savannah River swamp (Zone IV) and the tributary/bottomlands (Zone III)--would have been inhospitable for long-term settlement due to their excessive moisture and poorly drained soils. However, due to the extremely high productivity of these zones, they are expected to have been seasonally exploited for their aquatic resources. Thus, sites located in these zones would represent limited activities, and more permanent residential sites would be elsewhere.

The zone with the greatest probability for providing more permanent basecamp and habitation sites is the mesic terrace (Zone II), just above the tributary/bottomland zone. The mesic terrace is highly productive in flora and fauna during the spring, summer, and fall. Its soils and topography provide dry



	Zone I Upland Sandhills	Zone II Mesic Terraces	Zone III Tributaries and Bottomland	Zone IV Savannah River and Swamps
Key resources	Red oak acorns, deer, small terrestrial mammals, seeds, and hickory nuts	White and red oak acorns, deer, small terrestrial mammals, seeds, greens, turkey, berries, and fruits	Fish, aquatic fauna, waterfowl, deer, small mammals, red and white oak acorns, greens, fruits, berries, and seeds	Fish, aquatic fauna, freshwater mussels, small mammals, deer, greens, seeds, some acorns, and hickory
Season(s) of major utilization	Late fall and winter	Spring, summer, fall, and winter	Spring, summer, and fall	Spring and summer with minor use in fall
Activities	Acorn and hickory gathering, deer hunting and processing, small game hunting, seed collecting, general foraging, and short-term camping	Acorn and nut gathering, small mammal hunting, deer hunting and processing, vegetal food foraging, food processing and storage, and habitation	Fish procurement with spears and weirs, deer hunting, waterfowl hunting, acorn collecting, vegetal food foraging, and possible short-term camping	Fish procurement with spears, nets, weirs, and traps, mussel collecting, some deer hunting, and general vegetal foraging
Archaeological correlates	Small lithic and/or ceramic scatters, debitage indicative of tool maintenance, broken hunting and meat-processing tools, sites dispersed throughout the zone, and overall low lithic assemblage diversity	Large base-camp and habitation sites near either Zone III or Zone IV, high lithic assemblage diversity, seed and nut processing tools, storage containers, debitage reflecting tool manufacture and maintenance, and some small low tool diversity sites	Stream-edge fishing stations, fish traps and weirs, scattered meat-processing sites with low tool diversity, broken hunting and meat processing tools, and a dispersed pattern of nonfishing sites	Levee and slough edge fishing/mussel collecting stations, hunting and meat-processing sites on islands, overall low tool diversity in all of these small sites, and possible large base camps on islands

Figure E-1. General settlement-subsistence model for Steel Creek watershed.

and protected areas for dwellings. All areas in this zone are within 1 kilometer of permanent water sources.

For the most part, resources in the upland zone (Zone I) are available in their highest densities during the late fall and winter. The limiting factor in this zone is water, which occurs only in small springs and intermittent streams. Sites in this zone would be expected to represent limited activity, the primary activities being hunting and meat processing. Contributions to the archeological record would be limited to broken or exhausted tools related to these activities.

E.1.2 Prehistoric time periods

Early Archaic (9500 to 7500 B.C.) and Middle Archaic (7500 to 3000 B.C.) components found at three sites indicate a substantial early occupation in the Steel Creek watershed. The data collected indicate a subsistence strategy relying on the seasonal use of a great variety of resources scattered over a number of the settlement-subsistence zones, including an intensive use of the upland area of Savannah River Plant. This environmental diversification is accompanied by a gradual diversification of tool assemblage needed to accomplish various procurement tasks.

The predominant era of occupation, however, occurred during the Late Archaic (3000 to 1000 B.C.) and Early Woodland (1000 B.C. to A.D. 1), as evidenced by data collected at 10 sites. The data indicate subsistence strategy, but with an increased emphasis on riverine resources. Artifactual assemblages were much more diverse than those from previous periods, including for the first time a large number of ground stone tools, grinding tools, and both ceramic and steatite vessels. Toward the Early Woodland period there was a gradual lessening of reliance on floodplain resources. Sites on Savannah River Plant seem to be evenly distributed between riverine and upland areas but reflect an increased use of uplands during this era.

Following the Early Woodland period, the occupation in the watershed appears to be reduced, suggested by a smaller number of Middle and Late Woodland components. These sites were restricted to the upland zone.

Finally, the survey established only one Mississippian (A.D. 1000 to A.D. 1700) component in the watershed, in the upland zone, which suggests a largely reduced use of the area during the most recent prehistoric period. The data collected indicated an even greater reliance on the upland zone for resources.

E.1.3 Steel Creek watershed survey

The archeological and historical survey study area consisted of the Steel Creek 100-year floodplain. Two teams of archeologists traversed a stretch of Steel Creek approximately 13 kilometers long and 300 meters wide, inspecting 4-square-meter plots of the ground surface every 5 meters along the creek. The study area was inspected by raking the ground surface in a systematic manner.

When a site was located, random or systematic rake tests, as appropriate, determined the extent of the site. If a site was within 125 meters of Steel Creek, subsurface testing was performed to determine the nature of the site. Data and artifacts were recovered from 18 discrete locations in the study area (Figure E-2 and Table E-1).

E.1.4 Conclusions

The sites located during the survey were divided into three groups to evaluate their eligibility for nomination to the National Register (36 CFR 63.3). The following criteria were used: (1) those sites that are not significant; (2) those that have the potential for being significant; and (3) those that are significant. Sites characterized as significant have unique and sufficient content, integrity, and scientific importance to warrant their eligibility to the National Register; their content, integrity, and importance would suffer adverse effects from any man-caused activity that alters or destroys the immediate environment.

Ten of the sites located during the survey were not considered significant (Table E-2). These sites are prehistoric but are either lacking in integrity or limited in archeological content.

Seven of the sites located during the survey were considered to be potentially significant (Table E-2). Three of these are prehistoric with well-preserved archeological content. Each has the potential to give valuable scientific information about Archaic and Woodland adaptations and possibly about the development of ceramic technology in the area. These three sites are situated well beyond the area of potential impact from the increased water flow down Steel Creek. These three prehistoric sites have been determined not to be eligible for nomination to the National Register. The four other sites are historic features, three mill dams and a roadway, all situated on Steel Creek. These features have been weathered and partially destroyed by pre-SRP activities. The actual wooden mill structures are no longer standing, but the dams are relatively intact and well preserved. The bridge portion of the roadway that spanned Steel Creek is in ruins, but the earthen approaches are intact. These four sites are indicative of the pre-Civil War era and have the potential to yield information regarding the economy and transportation systems of the area. They also have been subjected to high water flow conditions, similar to the conditions anticipated with L-Reactor operations; they show no sign of adverse effects as a result of those conditions. In July 1982, DOE requested the concurrence of the Keeper of the National Register regarding these sites' eligibility for nomination to the National Register. The Keeper of the National Register concurred in the eligibility of these four sites for inclusion in the National Register.

One prehistoric site, located at the confluence of Steel Creek and Meyers Branch, was considered significant in terms of the National Register criteria. Although other sites contain similar artifactual data, this site's rich and diverse archeological deposit has the potential to provide valuable knowledge regarding the changes in technology and culture of the uninterrupted occupation from the Early Archaic through the Mississippian periods. Therefore, this site is considered a significant prehistoric resource. Aerial photographic studies

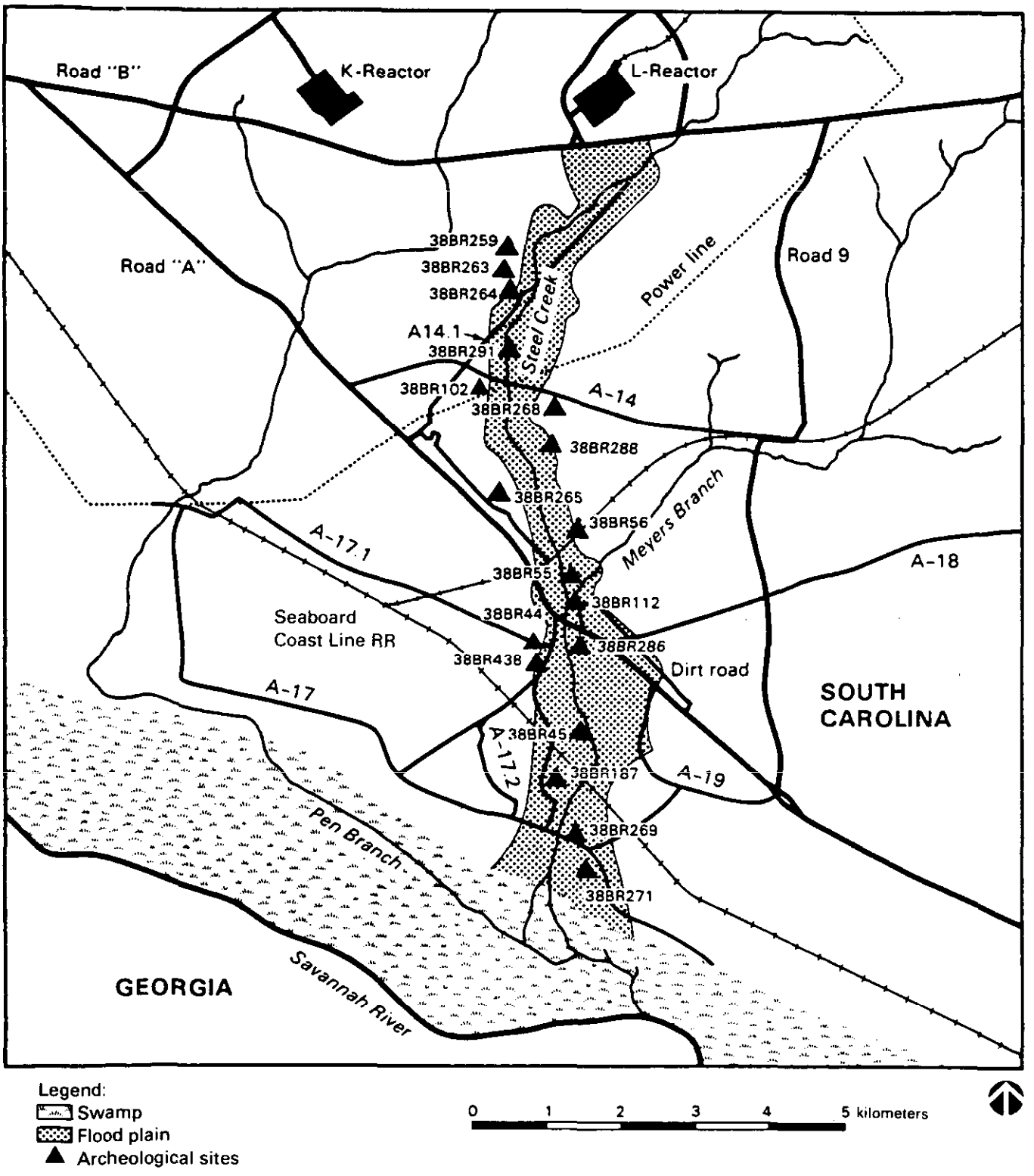


Figure E-2. General map of the survey area indicating site location.

Table E-1. Steel Creek archeological sites

Site number	Approximate location	Approximate size (m)	Prehistoric occupation[a]	Historic occupation	Remarks
38BR438	200 m west of floodplain; along Rd A-17 285 m south of Rd A-17.1	150 x 300	Middle and Late Archaic; Woodland	19th and 20th centuries	Repeated prehistoric occupation on a seasonal basis with habitation; no subsurface exploration; potentially significant.
38BR44	75 m west of floodplain; 100 m south of Rd A-17/A-17.1 junction	50 x 100	Early to Late Archaic	1780-1840 to 1930	No subsurface exploration except for material exposed in road cut to depth of 50 cm; site of preferred occupation.
38BR45	100 m west of floodplain on a ridgetop-terrace; 320 m northeast of Southern Railway line near junction with Rd A-17	300 x 700 (not well defined)	Early Woodland (?; ceramic prehistoric)	--	Possible reoccupations of short duration; no subsurface exploration.
38BR55	Confluence of Steel Creek and Meyers Branch; along terrace edges of both streams from 36.6 m to 4.27 m contours	100 x 600	Middle Archaic to Mississippian	--	Subsurface studies show cultural deposits about 1 m thick; approximate artifact density of $400/m^3$; likely base camp or habitation site throughout most of prehistoric time since Middle Archaic; eligible for inclusion in the National Register.

Table E-1. Steel Creek archeological sites (continued)

Site number	Approximate location	Approximate size (m)	Prehistoric occupation[a]	Historic occupation	Remarks
38BR56	200 m east of floodplain along Seaboard Coast Line Railroad line; 625 m north of Steel Creek and Meyers Branch confluence	50 x 80	Lithic prehistoric	—	Most of site is distributed beyond recovery by construction of railroad during early 1980s; no subsurface exploration--exposed in railroad cut; lacks temporally diagnostic materials.
38BR102	125 m west of floodplain; along Rd B-5, about 180 m west of Rd B-5/ A-14 junction	100 x 350	Late Archaic to Early Woodland	Pre-Civil War (1780-1830) to 1900	Site exposed during construction of transmission line; represents sandhill environmental zone and locus of limited activity.
38BR112	On and adjacent to Steel Creek about 200 m north of Rd A (125)	100 x 100	Lithic prehistoric	1814 to 1950	Historic mill and dam site across floodplain and prehistoric to the east of Steel Creek, which served as a limited-activity locus; absence of temporally diagnostic prehistoric artifacts; eligible for inclusion in the National Register.

Table E-1. Steel Creek archeological sites (continued)

Site number	Approximate location	Approximate size (m)	Prehistoric occupation[a]	Historic occupation	Remarks
38BR187	30+ m west of floodplain	250 x 1050	Early to Late Woodland	Post-1880 to 1940	Considered a single archeological scatter (composed of 38BR184, -185, -186, -187); some historic ruins near site; long occupation (with habitation) during Woodland; no subsurface exploration.
38BR259	100 m west of floodplain; 250 m west of Rd B-4 and 1690 m south of Rd B	50 x 120	Early Woodland	--	Artifacts found to a depth of about 80 cm; served as limited-activity locus and habitation; used for processing nuts and seeds.
38BR263	140 m west of floodplain; 100 m north of termination of Rd A-14.1 and 1780 m south of Rd B	50 x 50	Woodland (?, ceramic prehistoric)	--	No subsurface exploration; lacks temporally diagnostic materials; served as limited-activity locus.
38BR264	Along west side of floodplain; at terminus of Rd A-14.1.	50 x 50	Lithic prehistoric	--	Site disturbed by transmission line construction; lacks temporally diagnostic materials; served as limited-activity locus.

Table E-1. Steel Creek archeological sites (continued)

Site number	Approximate location	Approximate size (m)	Prehistoric occupation[a]	Historic occupation	Remarks
38BR265	100 m west of floodplain; 500 m north of Rd A-16	30 along north-south axis	Late Woodland (?)	--	No subsurface exploration; width of site is unknown; general lack of temporally diagnostic materials.
38BR268	150 m east of floodplain; 300 m from Rd A-14/B-5 junction	50 x 100	Early Woodland	--	Disturbed by earthwork for pre-1950 road maintenance; episodic limited-activity locus.
38BR269	On and beyond east side of floodplain; at termination of Rd A-17 on west and A-19 on east	Prehistoric site >40 x >80	Paleo-Indian-Early Archaic (?; Lithic prehistoric)	1788 (dam) site occupied through 1840	Historic mill dam site and associated prehistoric and historic artifact scatters; terrestrial portion of site is on the 30-m terrace of Savannah River; prehistoric artifact concentrations 160 and 210 m E of floodplain; artifacts to a depth of 45 cm; site of prehistoric habitation; eligible for inclusion in the National Register.
38BR271	300 m north of Savannah River swamp east of the delta; 1 km west of BM 131	40 x 60	Lithic prehistoric	--	No subsurface exploration early stage of lithic tool manufacture, but lacks temporally diagnostic materials.

Table E-1. Steel Creek archeological sites (continued)

Site number	Approximate location	Approximate size (m)	Prehistoric occupation[a]	Historic occupation	Remarks
38BR286	On east and west floodplain; 1786 path includes portions of Rds A-17.1 and A-18 west and east of Steel Creek, respectively	width = 7	--	1786-1940	Historic road and bridge approach; bridge known as Steel Creek Bridge; in 1966, when Steel Creek water level was maximum, water passed through the central area of the bridge pilings and approaches. No evidence of bridge piling found in 1981; eligible for inclusion in the National Register.
38BR288	On east side of floodplain; opposite Rd A-17.1/A-17.2 junction on west side of Steel Creek	5 x 3 at top	--	Before 1818-1840	Historic mill and dam site with several timbers remaining in water; eligible for inclusion in the National Register.
38BR291	125 m west of floodplain; 140 m south of Rd A-14.1 and 380 m north of Rd A-14	30 x 50	--	1770-1840	Historic artifact scatter site with no evidence of foundations or architectural features.

[a](?) = prehistoric lithic and/or ceramic debris--no specific time period.

Table E-2. Archeological resource summary for site recovery determined by Steel Creek survey

Site number	Period(s) of occupation[a]	Type of site	Eligibility for National Register	Adverse effects from increased water flow	Site preservation recommendations
38BR44	1, 2, 8 (1780-1930)	Limited activity	No	None	None
38BR45	4, (?)	Limited activity	No	None	None
38BR56	(?)	Limited activity	No	None	None
38BR102	3, 4, 8 (1780-1900)	Limited activity	No	None	None
38BR263	(?)	Limited activity	No	None	None
38BR264	(?)	Limited activity	No	None	None
38BR265	6	Limited activity	No	None	None
38BR268	4	Limited activity	No	None	None
38BR271	(?)	Limited activity	No	None	None
38BR291	8 (1760-1840)	Historic	No	None	None
38BR438	2, 3, 4	Habitation	No	None	None
38BR112	(?), 8 (1780-1940)	Limited activity, mill dam	Yes	Possible	Preserve vegetation cover and monitor
38BR187	4, 5, 6	Habitation	No	Possible	None
38BR259	4	Habitation	No	Possible	None
38BR269	(?), 8 (1780-1840)	Habitation, mill dam	Yes	Possible	Preserve vegetation cover and monitor
38BR286	8 (1780-1940)	Historic roadway	Yes	Possible	Preserve vegetation cover and monitor
38BR288	8 (1800-1870)	Mill dam	Yes	Possible	Preserve vegetation cover and monitor
38BR55	1, 2, 3, 4, 5, 6, 7	Habitation	Yes	Possible	Monitor erosion, provide erosion protection, data recovery

[a]1 = Early Archaic Period (9500-7500 B.C.); 2 = Middle Archaic Period (7500-3000 B.C.); 3 = Late Archaic Period (3000-1000 B.C.); 4 = Early Woodland Period (1000 B.C.-A.D. 1); 5 = Middle Woodland Period (A.D. 1-700); 6 = Late Woodland Period (A.D. 700-1000); 7 = Mississippian Period (A.D. 1000-1700); 8 = Historic Period (A.D. 1700-present); and (?) = Prehistoric lithic and/or ceramic debris--no specific time period.

of Steel Creek during periods of high water flow experienced with past reactor operations and physical inspection of the site did not reveal any adverse effects during the increased water flow conditions. In July 1982, DOE requested the concurrence of the Keeper of the National Register regarding this site's eligibility for nomination to the National Register. The Keeper of the National Register concurred in this site's eligibility for inclusion in the National Register.

E.1.5 Mitigation plan for the sites eligible for inclusion in the National Register

Those sites eligible for inclusion in the National Register (prehistoric site 38BR55, three mill dams, and a roadway) will be protected by a mitigation plan designed to prevent possible destruction caused by the increased water flow down Steel Creek. A physical inspection of the four historic earthen features to determine the presence and extent of erosion due to increased water flow indicated no erosion. A major reason for the lack of erosion appears to be the stabilizing effect of the trees and vegetation cover. The preservation of these four sites will be ensured by allowing and encouraging the continued growth of trees and vegetation. The prehistoric site will be subjected initially to a monitoring program that involves placing and checking erosion control stakes on the upstream edge of the site along Steel Creek. If the stakes indicate any erosion of the site edge, erosion barriers will be built. If the erosion barrier is not sufficient to protect the site, data recovery will become necessary; the probability of this is low because previous high-water levels did not affect the site. If erosion is not evident after two years of monitoring, the site will be considered sufficiently protected.

E.2 REGIONAL ARCHEOLOGICAL AND HISTORICAL RESOURCES

In 1982, 62 sites in the six-county area near Savannah River Plant were listed in the National Register of Historic Places (Table E-3). Richmond County, Georgia, has the largest number of sites (26), most in and around the City of Augusta; Aiken County, South Carolina, has 15 sites. Fifteen of the 62 sites are within 15 kilometers of Savannah River Plant.

Table E-3. *National Register sites in the six-county area near Savannah River Plant*[a]

Name	Location
AIKEN COUNTY, SOUTH CAROLINA	
Chancellor James Carrol House	Aiken
Coker Springs	Aiken
Legare-Morgan House	Aiken
Phelps House	Aiken
Dawson-Vanderhorst House	Northeast of Aiken
Fort Moore-Savano Town site	Beech Island vicinity
Redcliffe	Northeast of Beech Island
Graniteville Historic District	Graniteville
Silver Bluff	West of Jackson
Charles Hammond House	North Augusta
Rosemary Hall	North Augusta
Joye Cottage	Aiken
Chinaberry (Williams-Converse House)	Aiken
St. Mary Help of Christian Church	Aiken
Willcox's	Aiken
ALLENDALE COUNTY, SOUTH CAROLINA	
Antioch Christian Church	Southwest of Allendale
Erwin House	Southwest of Allendale
Gravel Hill Plantation	Southwest of Allendale
Red Bluff Flint Quarries	Allendale vicinity
Roselawn	Southwest of Allendale
Smyrna Baptist Church	South of Allendale
Lawton Mounds	Johnsons Landing vicinity
Fennell Hill	Peeples vicinity
BAMBERG COUNTY, SOUTH CAROLINA	
General Francis Marion Bamberg House	Bamberg
Woodlands	SE of Bamberg
Rivers Bridge State Park	Ehrhardt vicinity
Voorhees College Historic District	Denmark vicinity
BARNWELL COUNTY, SOUTH CAROLINA	
Banksia Hall	Barnwell
Church of the Holy Apostles	Barnwell
Church of the Holy Apostles Rectory	Barnwell
Old Presbyterian Church	Barnwell
Bethlehem Baptist Church	Barnwell

Table E-3. National Register sites in the six-county area near Savannah River Plant[a] (continued)

Name	Location
COLUMBIA COUNTY, GEORGIA	
Kiokie Baptist Church	Appling
Stallings Island	Northwest of Augusta
Woodville	Winfield vicinity
Columbia County Courthouse	Appling
RICHMOND COUNTY, GEORGIA	
Academy of Richmond County	Augusta
Augusta Canal Industrial Historic District	Augusta
Augusta Cotton Exchange	Augusta
Stephen Vincent Benet Home	Augusta
Brake House	Augusta
Landmark Baptist Church of Augusta	Augusta
Fitzsimmons-Hampton House	Augusta
Gertrude Herbert Art Institute	Augusta
Harris-Pearson-Walker House	Augusta
Meadow Garden	Augusta
Old Medical College Building	Augusta
Old Richmond County Courthouse	Augusta
Sacred Heart Catholic Church	Augusta
St. Paul's Episcopal Church	Augusta
Augusta National Golf Club	Augusta
Gould-Weed House	Augusta
Lamar Building	Augusta
Reid-Jones-Carpenter House	Augusta
Woodrow Wilson Boyhood Home	Augusta
College Hill	Augusta vicinity
Broad Street Historic District	Augusta
Pinched Gut Historic District	Augusta
Summerville Historic District	Augusta
Greene Street Historic District	Augusta
Springfield Baptist Church	Augusta
Meadow Garden-George Walton House	Augusta

[a]Data from USDOI (1979, 1980, 1981, 1982, 1983).

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